

IN THE CLAIMS

Claims 1-38 (cancelled)

Claim 39 (currently amended): A process for determining useful properties of individual building blocks of a material library ~~comprising disposed in a substrate having two individual building blocks in two sections which are separated from one another, which comprises, the process comprising:~~

simultaneously measuring, with a first sensor, a first parameter of each building block

~~simultaneous measurement of a first parameter at the two sections with a first sensor, with the first parameter giving an indication of a first property of the respective building blocks; and~~

determining, automatically by a data processing system, which of the build blocks to include in a subset of the building blocks, based on results of the measurements of the first parameter; and

measuring, with a further sensor, a further parameter of each of the building blocks in the subset ~~measurement of a further parameter with a further sensor, the further parameter giving an indication of a further property of the respective building blocks;~~

~~the further parameter being measured only for a selected group of sections, and the choice of which sections to include in the group depends on the results of the measurement of the first parameter.~~

Claim 40 (cancelled)

Claim 41 (currently amended): A process according to claim 39 ~~which further comprises the further comprising a preceding step of producing a the material library comprising the substrate to be measured.~~

Claim 42 (currently amended): A process according to claim 39 ~~which further comprises the further comprising a preceding step of introducing a starting material into the two substrate sections which are separated from one another of a material library to the building blocks~~ for carrying out a chemical or physical or chemical and physical conversion of the starting material ~~in the two substrate sections separated from one another, in each case in the presence of the corresponding building block, and obtaining in each case for each building block~~ an effluent stream containing a conversion product and/or the starting material.

Claim 43 (currently amended): A process according to claim 42 wherein the further parameter is measured ~~in each case~~ in the respective effluent streams ~~stream of the selected sections~~.

Claim 44 (currently amended): A process according to claim 42 ~~with the respective wherein a portion of each~~ effluent stream ~~of the selected sections being is~~ passed to the further sensor via a sniffing capillary positioned in the effluent stream ~~of the selected sections~~ by means of a suitable drive means.

Claim 45 (previously presented): A process according to claim 44 wherein the drive means is controlled automatically by the data processing system.

Claim 46 (cancelled)

Claim 47 (previously presented): A process according to claim 39 wherein the first sensor is based on color detection using a chemical indicator.

Claim 48 (currently amended): A process according to claim 39 wherein the first parameter is a temperature or a temperature change measured by the first sensor via infrared thermography, ~~and infrared thermography via the first sensor makes measurement of the temperature or temperature change.~~

Claim 49 (currently amended): A process according to claim 39 wherein the first parameter is a temperature or a temperature change, and the first sensor is a thermocouple ~~the temperature of the individual sections is measured in each case via a thermocouple.~~

Claim 50 (currently amended): A process according to claim 39 wherein the first sensor is an infrared camera that determines the temperatures of the building blocks simultaneously ~~which determines the temperature of the sections in an integrated manner.~~

Claim 51 (currently amended): A process according to claim 39 wherein the further sensor is based on a method ~~which is~~ selected from the group comprising mass spectrometry, gas chromatography, gas chromatography/mass spectroscopy, Raman spectroscopy, and FT-IR spectroscopy.

Claim 52 (currently amended): A process according to claim 39 wherein the material library is disposed in a substrate ~~is that comprises~~ a tube bundle reactor or heat exchanger and ~~the sections are~~ has channels in which the building blocks are located.

Claim 53 (currently amended): A process according to claim 39 wherein the material library is disposed in a substrate ~~is comprising~~ a block of a solid material which has channels.

Claim 54 (currently amended): A process according to claim 39 wherein the ~~two individual~~ building blocks have catalytic properties.

Claim 55 (currently amended): A process according to claim 54 wherein the ~~two individual~~ building blocks are heterogeneous catalysts and/or their precursors.

Claim 56 (currently amended): A process according to claim 55 wherein the ~~two individual~~ building blocks are inorganic heterogeneous catalysts and/or their precursors.

Claim 57 (currently amended): A process according to claim 54 wherein the ~~two individual~~ building blocks are solid catalysts or supported catalysts and/or their precursors.

Claim 58 (currently amended): A process according to claim 57 wherein ~~the two individual building blocks are present in each case as~~ each building block is present as a catalyst bed, tube-wall coating or auxiliary support coating.

Claim 59 (currently amended): A process according to claim 54 wherein the ~~first property is~~ parameter is indicative of the respective activity of the respective building blocks.

Claim 60 (currently amended): A process according to claim 54 wherein the ~~second property is~~ further parameter is indicative of the respective selectivity of the respective building blocks.

Claim 61 (currently amended): A process according to claim 39 wherein the first parameter is a measure of catalysis of a reaction is selected from:

decomposition of nitrogen oxides, the synthesis of ammonia, the oxidation of ammonia, oxidation of hydrogen sulphide to sulphur, oxidation of sulphur dioxide, direct synthesis of methylchlorosilanes, oil refining, oxidative coupling of methane, methanol synthesis, hydrogenation of carbon monoxide and carbon dioxide, conversion of methanol to hydrocarbons, catalytic reforming, catalytic cracking and hydrocracking, coal gasification and liquefaction, heterogeneous photocatalysis, synthesis of ethers, in particular MTBE and TAME, isomerizations, alkylations, aromatizations, dehydrogenations, hydrogenations, hydroformylations, selective or partial oxidations, aminations, halogenations, nucleophilic aromatic substitutions, addition and elimination reactions, dimerizations, oligomerizations and metathesis polymerizations, enantioselective catalysis and biocatalytic reactions.

Claim 62 (currently amended): An apparatus comprising:

~~means for receiving two individual building blocks, each comprising a substrate having two different sections which are separated from one another;~~

means for introducing a starting material to the building blocks;

a first sensor for measuring a first parameter of the building blocks;

a ~~further~~ second sensor for measuring a second parameter of a subset of the building blocks;

and

a data processing device ~~which~~ that selects the building blocks to be included in the subset based on results of measurements of the first parameter obtained by the first sensor ~~sections for measuring the further parameter on the basis of the results of measurement of the first parameter according to criteria which can be determined in advance.~~

Claim 63 (previously presented): An apparatus according to claim 62 wherein the first sensor is for measuring a temperature or a temperature change.

Claim 64 (previously presented): An apparatus as defined in claim 62 wherein the first sensor is based on color detection using a chemical indicator.

Claim 65 (previously presented): An apparatus according to claim 62 wherein the first sensor is an infrared camera.

Claim 66 (currently amended): An apparatus according to claim 62 wherein the ~~further~~ second sensor is based on a method ~~which is~~ selected from the group comprising mass spectrometry, gas chromatography, gas chromatography/mass spectroscopy, Raman spectroscopy, and FT-IR spectroscopy.

Claim 67 (currently amended): An apparatus according to claim 66 ~~in which~~ wherein the ~~further~~ second sensor is a quadrupole mass spectrometer.

Claim 68 (currently amended): An apparatus according to claim 62 further comprising a drive means and a sniffing capillary, the drive means being configured to position the sniffing capillary to receive the effluent stream of each building block of the subset, and the sniffing capillary being configured to conduct the effluent streams to the second sensor ~~a sniffing capillary for feeding the effluent stream of a section to the at least one further sensor and drive means for positioning the sniffing capillary for receiving the effluent stream of one section under study.~~

Claim 69 (currently amended): An apparatus according to claim 62 ~~in which~~ wherein the substrate means for receiving has a planar arrangement having a wire grid or foamed ceramic.

Claim 70 (currently amended): An apparatus according to claim 62 further comprising a housing in which the substrate means for receiving is disposed.

Claim 71 (currently amended): An apparatus according to claim 70 further comprising means for heating ~~the housing~~ and/or means for cooling the housing.

Claim 72 (currently amended): An apparatus according to claim 70 wherein the housing has an IR-transparent window, and ~~the~~ an infrared camera is disposed outside the housing in front of the IR-transparent window.

Claim 73 (currently amended): An apparatus according to claims 62 wherein the ~~substrate~~ means for receiving comprises a block made of electrically ~~conducting~~ conductive material ~~exhibiting with sections having the form of channels~~, said block being heatable by the principle of a resistance heating.

Claim 74 (previously presented): An apparatus according to claim 73 wherein each channel comprises a carrier.

Claim 75 (currently amended): An apparatus as defined in claim ~~73~~ 74 wherein the carriers are synthesized into the channels.

Claim 76 (currently amended): An apparatus according to claim ~~73~~ 74 wherein each carrier and/or channel ~~comprises~~ supports a building block.

Claim 77 (new): The process of claim 39 wherein, in the determining step, determination of whether or not to include a building block in the subset is based on a comparison of the first parameter to a predetermined limit value.

Claim 78 (new): The process of claim 39 wherein the subset includes fewer than all of the building blocks.